

IN THE CLAIMS

Claims 1-6 (canceled).

*subcl*  
*PST*  
X (previously amended) A storage controller for controlling transfer of input/output data to and from a lower level apparatus in response to input/output requests received from a higher level apparatus, said storage controller comprising:  
a plurality of external interface controllers for receiving said input/output requests;  
a plurality of control processors which process said input/output requests;  
a loop of fibre channel interface interposed between said external interface controllers on one hand and said control processors on the other hand so as to serve as a channel through which information is transferred therebetween; and  
storing means which is accessed in common by said control processors and which stores a logical unit number which the input/output requests are assigned to, and to be processed by said control processors,  
wherein each of said control processors comprises:  
monitoring means for monitoring operating status of the other control processors, and  
takeover means which, if a stopped state of any other control processor is detected, updates said logical unit numbers in said storing means so that the control processor in question may take over the processing of the stopped control processor.

✓ Claims 8-10 (canceled).

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11. (previously added) A storage controller according to claim 1, wherein  
said storing means includes a time information area for allowing said plurality of  
control processors to write current time information therein,

BA  
wherein each of said plurality of control processors further comprises:  
means for writing the current time information at predetermined intervals, and  
wherein said monitoring means allows each control processor to check said  
current time information written by other control processors to detect whether any of  
said control processors has stopped or not.

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12. (previously added) A storage controller according to claim 1, wherein  
external interfaces, which are used for communication between said external  
interface controllers and said higher level apparatus, has a plurality of different types,  
and

wherein each of said external interface controller converts said input/output  
request in an information format of said external interface received from said higher  
level apparatus into an input/output request in another format used for said loop of  
fibre channel interface.

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13. (previously added) A storage controller according to claim 12, wherein  
said external interface includes a fibre channel interface, and

wherein said external interface controller transmits the input/output request  
received from said higher level apparatus to said loop of fibre channel interface.

*pub C1* <sup>9</sup> 14. (previously added) A storage controller according to claim <sup>3</sup> 12, wherein said external interface includes a SCSI, and

*BA* wherein said external interface controller converts said input/output request in a SCSI format into a request in an information format used for said loop of fibre channel interface.

<sup>6</sup> 15. (previously added) A storage controller according to claim <sup>3</sup> 12, wherein said external interface includes a channel interface for the use by a main frame system, and

wherein said external interface controller converts said input/output request in the channel interface format into a request in an information format used for said loop of fibre channel interface.

[ Claims 16-20 (canceled). ]

*pub C1* <sup>7</sup> 21. (new): A storage controller according to claim <sup>1</sup> 7, wherein said storage controller further comprises:

a data storage memory which is connected to said control processors for temporarily storing the data stored in said lower level apparatus, and

wherein each of said control processors further comprises:

transmitting means for sending information to said loop,

wherein when said input/output request is a read request, said control processor reads requested data from said data storage memory and sends out the requested data to said loop through said transmitting means.

*Butcher* <sup>8</sup>  
~~22~~ (new): A storage controller according to claim <sup>7</sup>~~21~~, wherein when said input/output request is a write request, said control processor writes data to said data storage memory.

*BA* <sup>9</sup>  
~~23~~ (new): A storage controller according to claim <sup>7</sup>~~21~~, wherein external interfaces, which are used for communication between said external interface controllers and said higher level apparatus, has a plurality of types, and wherein said external interface controller converts said input/output request in an information format of said external interface received from said higher level apparatus into the input/output request in another format used for said loop of fibre channel interface.

<sup>10</sup>  
~~24~~ (new): A storage controller according to claim <sup>9</sup>~~23~~, wherein said external interface includes a fibre channel interface, and wherein said external interface controller transmits the input/output request received from said higher level apparatus to said loop of fibre channel interface.

<sup>11</sup>  
~~25~~ (new): A storage controller according to claim <sup>9</sup>~~23~~, wherein said external interface includes a SCSI, and wherein said external interface controller converts said input/output request in the SCSI format into the request in an information format used for said loop of fibre channel interface.

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<sup>12</sup>  
~~26.~~ (new): A storage controller according to claim <sup>9</sup>~~23~~, wherein said external interface includes a channel interface for the use of main frame system, and wherein said external interface controller converts said input/output request in the channel interface format into the request in an information format used for said loop of fibre channel interface.

*BA*  
<sup>13</sup>  
~~27.~~ (new): A storage controller according to claim <sup>1</sup>~~7~~, wherein said storage controller further comprises:  
a data storage memory, which is connected to said control processor, for temporarily storing the data stored in said lower level apparatus,  
wherein when said input/output request is a write request, a processing means for processing said input/output request in said control processor writes data to said data storage memory.

<sup>14</sup>  
~~28.~~ (new): A storage controller according to claim <sup>13</sup>~~27~~, wherein each of said control processors further comprises:  
transmitting means for sending information to said loop,  
wherein when said input/output request is a read request, said control processor reads requested data from said data storage memory and sends out the requested data to said loop through said transmitting means.

<sup>15</sup>  
~~29.~~ (new): A storage controller according to claim <sup>13</sup>~~27~~, wherein external interfaces, which are used for communication between said external interface controllers and said higher level apparatus, has a plurality of types, and

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wherein said external interface controller converts said input/output request in an information format of said external interface received from said higher level apparatus into the input/output request in another format used for said loop of fibre channel interface.

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30. (new): A storage controller according to claim 15, wherein said external interface includes a fibre channel interface, and

wherein said external interface controller transmits the input/output request received from said higher level apparatus to said loop of fibre channel interface.

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31. (new): A storage controller according to claim 15, wherein said external interface includes a SCSI, and

wherein said external interface controller converts said input/output request in the SCSI format into the request in an information format used for said loop of fibre channel interface.

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32. (new): A storage controller according to claim 15, wherein said external interface includes a channel interface for the use of main frame system, and

wherein said external interface controller converts said input/output request in the channel interface format into the request in an information format used for said loop of fibre channel interface.